

IV. TMCI-ASTA SHEET

- A. Objective: To develop a subjectively and physically acceptable reconstituted tobacco sheet using the TMCI process and PM-RCB technology for international application.
- B. Results: Initial chemical analysis of Tarragona ASTA samples indicated that products are within specification limits. Selected samples were processed into small scale 7% and 15% blends for subjective evaluation. Large scale Semiworks processing is planned for July to evaluate survivability and for further subjective evaluation.

The need for a finer tobacco grind to improve sheet quality was accepted by TMCI. Trials were run at Williams Grinding Mill Company to determine the capacity of their mill in Cadiz to produce tobacco ground to different sizes less than 60 mesh. A request was made to TMCI to expedite the installation of the Williams mill in Cadiz to provide finer ground tobacco for evaluation in Tarragona prior to Cadiz start-up.

Recommendations were made to TMCI for mechanical modifications to the Tarragona installation which are necessary before any further trials are run.

C. Plans:

1. Evaluate ASTA products for survivability and subjectives by the end of August.
2. Run trials to determine the optimum tobacco particle size for ASTA sheet which produces satisfactory survivability through primary processing.

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evaluation. Preliminary screening found these models to be less objectionable than previous cigarettes containing monopotassium citrate cased stems. The results also demonstrated a preference for the middle level of citric acid among those models.

DIET was produced from pre- and post-ART DL filler at the standard expansion temperature of 625F and a reduced temperature of 380F for Product Development evaluations. As expected, there appeared to be little expansion from the runs at the lower temperature. Physical and chemical analyses of the products are underway.

Laboratory work is progressing in the determination of titration curves for blend components and the effects of various factors on the curves. These factors have included the addition/subtraction of nicotine, the addition of ammonia, and the effect of temperature. A computer program was written to predict the effect of water removal on the tobacco pH. In addition, using the titration curves for CRS, predictions were made for the change in pH with the addition of nicotine.

- C. Plans: Conduct further testing of steaming parameters required to declump post-ART filler.

Continue subjective evaluations of post-ART stems, initially cased with citric acid.

III. BINDER DEVELOPMENT

- A. Objective: Develop methods to produce binder systems for the foam bound rod, bonded ends, and low density rod programs.
- B. Results: Several batches of 4% NaCMC/2% licorice were prepared for Engineering's foam bonded ends program. In addition, foam half-life and foam viscosity tests were run on solutions of 4% NaCMC, with licorice content varying from 1 to 2%, to correlate the rate of collapse with the composition of the solution.

A meeting was held with Flavor Development to discuss the application of aftercut within the Low Density Rod Program. Discussions centered around the addition of the aftercut to the 2% pectin solution prior to application on the tobacco. As follow-up to the meeting, surface tension, contact angle, and Haake viscosity data were determined for 2% pectin solutions containing various amounts of aftercut solution. The data showed that there was very little effect on the properties of the pectin solution.

- C. Plans: Continue to provide support as required to the above programs.

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PROJECT NUMBER: 1806
PROJECT TITLE: New Tobacco Processes
SECTION LEADER: S. R. Wagoner
PERIOD COVERED: June, 1988

I. PROJECT ART - PILOT PLANT SUPPORT

- A. Objective: To provide processes for converting and casing stem materials for the Bermuda Hundred Pilot Plant.
- B. Results: Batches of Louisville cut rolled stems (CRS) were cased with either monopotassium citrate or citric acid and shipped to the Bermuda Hundred Pilot Plant.

The D Pilot Plant CRS line was utilized to produce CRS at 150, 90, and 53 cuts per inch for trials at the BHPP. These trials showed that all three cpi values produced the same pressure drop vs velocity profile for the absorber. This profile was also different from the Louisville CRS, as the Pilot Plant materials produced less pressure drop at a given velocity. The reasons for these results are being investigated.

- C. Plans: Continue to produce stem products as required by Project ART.

Transfer the Hauni WD tunnel from the Louisville Stem Processing Facility to D Pilot Plant, providing the capability of superheating stems with equipment that has produced IS of acceptable quality in production.

II. PROJECT ART - COMMERCIAL PROCESS DEVELOPMENT

- A. Objective: To conduct trials providing information for development of the ART commercial process.
- B. Results: Post-ART filler was processed through the VT separator in MC Core 1 to provide clumps for steam treatment. (This ART run was performed at nonstandard conditions to produce filler containing a high percentage of compacted clumps.) The VT provided a good separation at a maximum feed rate of ~2000 lb/hr. The run yielded 43% heavies (161 lb) containing 87% clumps. The heavy fraction was then processed through the burley spray cylinder in the Semiworks at 500 lb/hr. Residence time was 1.5 minutes, and steam was applied at the entrance and exit. The exit filler contained 20% clumps of reduced size. Moisture analysis of the input and exit materials showed the OV value to increase from 25.5% to 26.4% across the steam cylinder. This VT separator was 24" wide, therefore a larger 36" unit would process ~3000 lb/hr. Thus, if this approach was used for the commercial facility, the designed flow rate (5700 lb/hr) would require two VT separators.

Handmade cigarettes were produced containing post-ART CRS initially cased with 5, 8, and 10% citric acid for subjective

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